

THE HEALTH OF THE PUBLIC IS IN YOUR HANDS



A FOOD HANDLER'S GUIDE TO FOOD SAFETY



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FOREWORD

Thank you for taking this opportunity to learn all you can about how to prepare and serve food that is safe and will not cause illness. By working together, the San Diego County Department of Environmental Health and Food Service Professionals can minimize the potential of foodborne illness by improving food employee behaviors and food preparation practices.

This booklet is intended to provide you with a basic understanding of the principles of food safety that you can use both in your home and at work. As you will learn, people can get sick if the food they eat has not been prepared using safe food handling practices.

By following the simple rules outlined in this booklet, you can keep yourself and others healthy. Remember, your job, the success of your employer, and the health of the public is in your hands.

Liz Pozzebon, MS, REHS
Chief
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Notes

Notes

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INTRODUCTION

We all need food to stay alive and healthy. However, food can also make us sick if it's not prepared and served properly. You as a food handler play an important role in making sure people do not get sick from the foods and drinks you prepare and serve.

To prevent people from becoming ill from the food they eat, the County of San Diego requires all food handlers who work in food facilities such as restaurants, bakeries, mobile food facilities (vending) and grocery stores to receive food safety training and pass a test every three years.

A. Who Must Receive Training?

Food handlers are required to receive food safety training. A food handler is an employee of a food facility who is involved in the preparation, storage, service, or handling of food products. Anyone who prepares food or who may come in contact with food products, food utensils, or equipment is a food handler.

No person shall be engaged in food handling unless he or she:

1. possesses a valid Food Handler Training Card,
2. is working in an establishment under the supervision of a certified food safety manager and has taken and passed an exam approved by the County of San Diego, or
3. is an owner or employee who has successfully passed an approved and accredited food safety certification examination.

San Diego County Code states that if you work at a job (i.e., a waiter, waitress, bartender, chef, dishwasher, meat cutter, deli or salad bar worker, etc.) that requires you to handle food or dishes, you must receive food safety training.

CONTACTS

DEH web-site	www.sdcdeh.org
Report Foodborne Illness	(619) 338-2356
Fax	(619) 338-2245
Complaints	(619) 338-2283
Permit Information	(619) 338-2087
Plan Check Information	(619) 338-2364
Food Handler Training Info	(619) 338-2093

Remember:

The public depends on you, the food handler, to protect the food they eat. The most important things you can do are:

- Wash your hands before you prepare, serve, or store food.
- Don't handle foods when you are sick.
- Keep cold food at or below 41°F and hot food at or above 135°F.
- Thoroughly cook meats, poultry, fish, and eggs.
- Keep food contact surfaces clean and sanitized.
- Buy food from an approved safe food source.

Take your job seriously, we all depend on you!

Why are food handlers required to receive special training?

Because if you do not understand and do not follow the rules of food safety, you can make yourself and your customers sick.

This booklet was written for you, the food handler. It contains information to help you keep the public healthy, and to help you keep your job. You should know this information and use it at work and at home. This booklet was designed to help you learn the simple rules of food safety.

MAJOR CAUSES OF FOODBORNE ILLNESS

The Centers for Disease Control and Prevention (CDC) has identified the following food safety risk factors as the major causes of foodborne illnesses:

1. Poor personal hygiene
2. Improper food holding temperatures
3. Improper cooking temperatures
4. Contaminated equipment
5. Foods from unsafe sources

It is very important to control these risks at all times so food can be safe!

A. What makes people sick from food?

Food can make people sick because of several types of germs, also known as pathogens. These germs include viruses, protozoa, parasites, and bacteria. For example, Hepatitis A is an illness caused by a virus. If food handlers do not wash their hands after using the toilet, they can contaminate food with the Hepatitis A virus. To prevent or stop the spread of Hepatitis A, and many other disease-causing germs, food handlers must wash their hands after using the toilet.

B. What are germs, toxins, and chemicals?

- **Germs (Pathogens).** Germs are very small living organisms (viruses and bacteria). If eaten, germs can make you sick. You need a microscope to see these tiny organisms and they are almost everywhere.
- **Toxins.** Toxins are poisons produced by bacteria. Toxins are not living organisms and are hard to destroy. It's important to destroy bacteria before they make toxins.
- **Chemicals.** Chemicals are substances that can be dangerous if eaten. They can get into food by accident. Some chemicals often found in kitchens are cleansers, bleaches, sanitizing agents, and insecticides.

C. What are the toxins in food that make people sick?

Toxins are poisons made by bacteria. If you keep bacteria out of food, you keep toxins out too. Since some food already has bacteria in it, you must keep the bacteria from growing and making toxins. To prevent bacteria from growing, always keep food at safe temperatures by keeping cold food cold (41°F or below), and hot food hot (135°F or higher).

D. How do germs get into food?

- **Some foods contain germs naturally.** High food temperatures will kill most of these germs. Killing germs is one of the reasons we thoroughly cook meat, fish, chicken, and eggs. If foods are heated to high enough temperatures, the germs will be killed and illness is prevented.
- **Cross Contamination.** Food can be contaminated by touching dirty objects. Food can get germs from objects such as a dirty knife or cutting board, or hands that have germs on them. If clean food is touched by a dirty object or dirty hands, the clean food becomes contaminated.
- **Food Handlers are the #1 cause of the spread of germs to food.** Food handlers must wash their hands

B. Inspection reports

- A copy of the last inspection report has to be available for review if requested by the customer.

GARBAGE AND REFUSE

A. How often should trash be taken out?

- Food wastes and all other garbage should be thrown away at least once a day.
- Place garbage in strong plastic bags and place them in an outside container with a tight-fitting lid.
- Refuse containers must be kept clean, not leak, and be tightly covered to keep out pests.
- Garbage and refuse should be picked up as often as necessary to prevent the bin from overflowing, but not less than once per week.



SIGNS AND OTHER REQUIREMENTS

A. Required signs must be posted

- Grade cards for food facilities that prepare food must be posted during all hours of operation.
- Hand washing signs must be posted at all hand wash sinks in toilet rooms and food preparation areas.
- Food facilities constructed after January 1, 2004 that prepare food for consumption on site have to provide toilet rooms for customers. Facilities constructed before that time that don't provide toilet rooms for customers have to post a sign stating that toilet rooms are not available.

whenever they might be contaminated. Germs can also be spread by people coughing and sneezing onto food, unclean kitchen utensils, cutting boards and countertops, and pests such as cockroaches, flies, rats and mice. Remember, germs can only be seen under a microscope!

- **Raw whole fruits and vegetables must be washed.** To get rid of the germs and the chemicals on them, raw whole fruits and vegetables must be washed before they are prepared or served.

E. Can you tell if food is contaminated?

Contaminated food may not look, smell, or taste bad. Sometimes germs will make food smell bad, letting you know the food must be thrown out. However, other germs do not always make the food spoil and they do not have a bad smell.

EMPLOYEE HEALTH & HYGIENE

A. Ways Food Handlers Can Spread Disease

- Not washing hands
- Skin lesions
- Nasal discharge or respiratory illness (sneezes/coughs)
- Working with food or utensils while ill with diarrhea, and/or fever, vomiting, and stomach cramps
- Poor personal hygiene

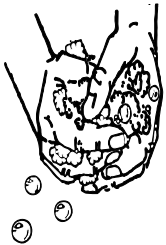
B. How to Prevent Foodborne Illness

- Wash your hands before you begin working and whenever they might be contaminated, such as, after coughing, sneezing, touching raw meat or poultry, or especially after using the toilet.
- Do not wear jewelry on hands and arms (other than a plain ring, such as, a wedding band) when handling food or utensils.
- Try to avoid touching food with your bare hands, particularly ready-to-eat food that will not be cooked or has already been cooked. Use clean plastic gloves or

clean kitchen utensils to mix, prepare, and serve food.

- If you are sick with diarrhea and/or vomiting, fever, or stomach cramps, **DO NOT WORK WITH FOOD OR UTENSILS!** You can pass your germs on to the customer through the food or utensils you handle.
- If you have an open cut, wound, or sore on your hands or arms you should not work with food. When you are allowed to return to work, cover the wound with a water-proof bandage and wear plastic gloves.
- Keep your clothes clean. Change your uniform and apron often.
- Always restrain your hair with a covering such as a hair net or cap. Long beards should also be restrained. This keeps loose hairs and sweat out of food.

C. Why should you wash your hands?



Look at your hands, do they look clean? Just because they look clean does not mean they are clean. Hands can have thousands of germs on them that you cannot see. Hands spread germs from one place to another. Hands that are not thoroughly washed are one of the main reasons why people get sick from the food they eat.

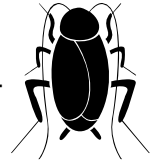
You can prevent this. **How?** By washing your hands often!

D. When should you wash your hands?

- **After using the toilet.** Human wastes (urine and feces) can spread many diseases-causing germs including Hepatitis, Salmonella, Shigella, Norovirus, Campylobacter, and Clostridium perfringens.
- **After all breaks and before going back to work.**
- **After sneezing, coughing, or blowing your nose.** There are many germs in your nose and throat that can get onto your hands. The bacteria can produce toxins that are difficult to destroy.

- Inspect all boxes and other containers delivered to the store or restaurant. Cockroaches love to hide in paper and cardboard boxes.

3. Eliminate: Destroy their hiding places.



- Repair any loose wallboard or paneling.
- Seal holes, cracks and crevices.
- Do not use paper or cardboard to line shelves.
- Clean the kitchen and storage areas regularly, particularly dark, warm places where cockroaches love to hide.

4. Keep them from multiplying.

- Flies are attracted to uncovered trash cans, where they breed and multiply.
- A fly can carry as many as six million germs on it.
- Flies vomit on food to make it soft and then suck it up.
- Keep trash cans clean and covered.

Chemicals used to kill pests can make people sick. Applying chemicals near dishes and food is dangerous. Chemicals used must say on the label that they are approved for use in a food preparation area of a commercial kitchen and directions on the label must be closely followed.

Chemicals must also be stored in their original container in a cabinet away from food and the food preparation area.

If your facility has an infestation of pests, please contact a pest control professional to help eliminate the problem.

or no longer meets the required sanitizing concentration levels specified on page 18, it must be replaced.

PEST CONTROL

A. What can you do to control cockroaches, flies, mice, and rats?

1. Starve them out.

- Keep the establishment clean.
- Keep lids sealed tightly on food containers.
- Clean the inside and outside of all trash and garbage containers on a regular basis.
- Be sure trash and garbage containers outside the building are tightly closed. Keep the area surrounding the containers clean.
- Have garbage picked up often.



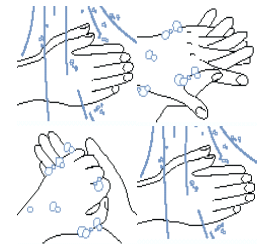
2. Keep them out.

- Repair any cracks or holes in walls, floors, or ceiling.
- Seal holes around drains and pipes.
- Use floor sink screens to keep drains clear and prevent entry by vermin.
- Make sure doors, windows, and screens shut tightly.
- Repair broken screens

- **After handling uncooked or raw food.** Raw products, such as raw meats, contain germs. If you touch them, your hands will be contaminated and can spread the germs to whatever you touch next.
- **After eating or smoking.** Germs that are always in the saliva in your mouth can get onto your hands when you eat or smoke.
- **After scratching or touching your body,** particularly infected sores, boils and pimples. Bacteria from infected sores and boils can produce toxins that are hard to destroy.
- **After combing or handling your hair.** Even clean hair can carry bacteria.
- **After touching dirty objects,** such as customers' used dishes and dirty equipment.
- **After changing tasks,** such as carrying out the trash, mopping, or sweeping the floor.
- **After any possible contamination.**

E. How should you wash your hands?

1. Use warm water and soap from a dispenser (not bar soap).
2. Scrub your hands and forearms for 10-15 seconds to clean and don't forget between fingers and fingernails. Try timing yourself.
3. Rinse your hands in warm, running water.
4. Dry with a single-use towel (or air dry).
5. Keep all hand washing facilities stocked with soap, paper towels (or hand dryer), and warm water measured at least 100 °F.
6. Hand sanitizers, if used, should only be applied after hands are washed.



F. How should you use gloves?

State law says you should minimize bare hand contact with ready-to-eat foods. This means you should use a utensil or gloves whenever you can. If you use gloves:

- Always wash your hands before putting on your gloves.
- Change gloves as often as you would wash your hands so you don't contaminate food, such as after handling raw meat or after sneezing. *Never wear gloves when you have to use the toilet.*
- Always wear a fresh, clean pair of gloves before handling ready-to-eat foods.

G. What are you required to do if you are sick?

If you are sick State Law requires that you:

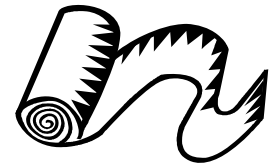
- *Notify the Person In Charge (PIC) if you have been diagnosed with the following Gastrointestinal Illnesses: Salmonella, Hepatitis A, Shigella, Enterohemorrhagic or shiga toxin producing E. coli, Norovirus or Entamoeba histolytica (including typhoid fever and cholera). Remember, you should not work with food or utensils if you are sick with gastrointestinal illnesses, especially with diarrhea and/or abdominal cramps, fever, and vomiting.*
- *Notify the Person In Charge if you have a lesion or wound on the hands, wrists, and arms that is open or draining. Remember, all lesions and wounds in these areas must be protected with an impermeable cover (such as a finger cot or stall) and covered with a glove if on the hands. Lesions on other parts of the body should be covered by a dry, durable, tight-fitting bandage.)*

beef or poultry) and ready-to-eat foods (like deli meats and cheese).

- Clean beneath, behind, above, and around all equipment and customer tables.
- Thoroughly clean restrooms daily. Clean floors, walls, sinks and faucet handles, doors and doorknobs, mirrors, toilets, and urinals. Be sure that single-use towels, liquid or powdered soap, and toilet paper are in their wall-mounted dispensers, at all times and hand washing signs are posted.
- Floors, walls, and ceilings need to be kept clean.
- Clean trash cans, mops, and wiping cloths on a regular basis.
- Have a daily cleaning schedule posted and follow it.

F. Use wiping cloths properly

- **Dry wiping cloths:** Clean linens must be free from food debris and visible soil. They are to be used for a single purpose (i.e., wiping tables, seats, or tableware) or used once and laundered.
- **Wet wiping cloths:** Clean linens must be free of food debris and visible soil. They can be used repeatedly for a single purpose if kept in sanitizing solutions as specified on page 18.
- Wiping cloths used for raw animal products must be kept separate from cloths used for other purposes.
- Chemical test strips must be available if sanitizers are used.
- Whenever a sanitizing solution becomes cloudy or heavily permeated with food particles and juices,



3. Make sure that detergent, rinse agent, and sanitizer dispensers are filled and operating correctly. **CHECK THEM!**
4. Run the racks through a full machine cycle.
5. Let the dishes and utensils air dry. Do not dry them with towels.
6. At the end of the day, clean the dishwashing machine. Be sure to clean the spray holes and traps to remove food particles.
7. Regularly check sanitizer level using the right chemical test strips.

D. Utensil storage and use

- Store dishes in a protected area. Place utensils so they can be picked up by the handles. Store cups and glasses upside-down on a clean surface, so when they are picked up, you never touch the rim or inside of the glass.
- Broken, chipped or cracked dishes are unacceptable and are never to be used. Safely dispose of all broken items in designated trash receptacles.
- Keep hands away from rims of glassware and interior of plates.

E. What else needs to be kept clean?

- Thoroughly clean and sanitize all equipment, countertops, cutting boards, meat slicers, and work areas used to prepare or serve food.
- Take apart, clean, and sanitize meat grinders at least every 4 hours and between processing different types of food. Clean daily if the meat grinder is in a refrigerated room.
- Take apart deli slicers to clean and sanitize every 4 hours or between processing raw food (like raw

H. What is the Person In Charge required to do if you are sick?

A Person in Charge must be at the facility during all hours of operation. If you are sick, State law requires that the Person In Charge do the following:

- *Report to the Department of Environmental Health if you are diagnosed with Salmonella, Hepatitis A, Shigella, Enterohemorrhagic or shiga toxin producing E. coli, Norovirus or Entamoeba histolytica (including typhoid fever and cholera) by calling (619) 338-2356.*
- *Report to the Department of Environmental Health if two or more people are sick with acute gastrointestinal illness by calling (619) 338-2356. Acute gastrointestinal illness is diarrhea, either alone or with vomiting, fever, or abdominal cramps. It can also be vomiting with diarrhea or two other gastrointestinal symptoms such as fever or abdominal cramps.*
- *Exclude a food handler from the food facility if diagnosed with Salmonella, Hepatitis A, Shigella, Enterohemorrhagic or shiga toxin producing E. coli, Norovirus or Entamoeba histolytica (including typhoid fever and cholera). Only County of San Diego Department of Environmental Health or the County Health and Human Services Agency can clear an excluded employee to go back to work.*
- *Restrict a food handler from working with exposed food, clean equipment, clean linens, clean utensils, and unwrapped single-service articles if the food handler is suffering from symptoms of acute gastrointestinal illness or if they are experiencing persistent coughing, sneezing, or nasal discharges. Restrictions can be removed by the Person In Charge when the food handler states they no longer have symptoms of illness.*

PROTECTION FROM CONTAMINATION

Food must be stored, prepared, and served so it is protected from contamination.

A. Store food so it is protected from contamination

- Ice is often called the “forgotten food”. Although it’s frozen, ice can still be contaminated with germs. Do not use your hands or drinking glasses to scoop ice. Use only commercial food-grade plastic or metal scoops with handles.
- Do not chill glasses or store any items in ice if that ice will be used in drinks.
- Clean can openers before and after each use and replace or rotate blade as often as necessary.
- Store cooked and ready-to-eat foods above raw foods in the refrigerator.
- Keep foods covered.
- Don’t stack uncovered foods on top of each other.
- Never add sulfites to fresh fruits and vegetables or to potentially hazardous foods like meat, fish, poultry, or dairy products.

B. Prepare food so it is protected from contamination

- Clean fruits and vegetables in the food preparation sink prior to use. Be sure to wash, rinse, and sanitize the sink between uses, especially after preparing raw meats or produce.
- When preparing raw meats, prevent cross contamination by cleaning and sanitizing cutting boards prior to use with other food items.
- Prepare raw foods separately from cooked foods.

B. Steps in Washing Multiuse Utensils by Hand

1. Scrape and soak to remove food particles.
2. Wash dishes and utensils in the first sink in hot, soapy water. Change water and detergent often. The hot water in this sink must be at least 110°F.
3. Rinse in the second sink in clear, hot water to remove detergent. If detergent is left on the dishes, the sanitizer will not work.
4. Sanitize in the third sink to kill disease-causing germs. Dishes and utensils can be sanitized by either of the following:
 - Contact for 30 seconds with 180°F water,
 - Contact for 30 seconds with a warm water solution of 100 parts per million (ppm) chlorine,
 - Contact for 60 seconds with a warm solution of 200 ppm quaternary ammonium, or
 - Contact for 60 seconds with a warm water solution of 25 ppm iodine.

Use chemical test strips often to make sure the sanitizer level is correct.

5. Air dry dishes and utensils. Do not dry with towels.

Read instructions on the labels of sanitizer containers to determine the right water temperature and amount of sanitizer to be added to a full sink of water.

C. Steps in washing dishes and utensils by machine

1. Scrape dishes and soak utensils.
2. Rack dishes so they do not touch and so water can reach every surface. This helps clean them and keeps them from breaking and chipping.

- Packaged foods must be labeled.

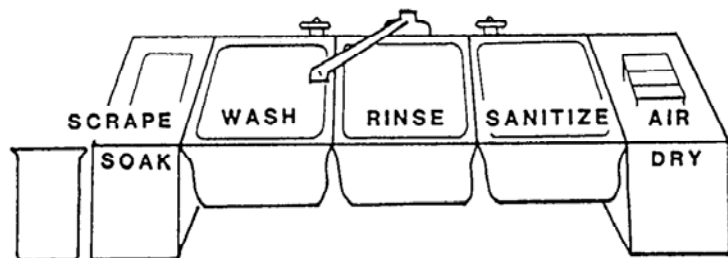
B. Shellfish (i.e., oysters, mussels, clams) must be from safe sources and handled safely

- Tags for shellfish must be kept with the container they are stored in until it is empty. The tags also have to be kept on file at the facility for at least 90 days.
- Between the months of April 1 to October 31: Raw Gulf Coast Oysters can't be served or sold without a copy of a certificate that says they are treated.
- Between the months of November 1 to March 31: If raw Gulf Coast Oysters are served or sold, warning signs have to be posted for untreated Gulf Coast Oysters.

EQUIPMENT AND UTENSILS

A. Why is it important to wash and sanitize dishes & utensils?

Washing gets dishes and utensils clean. Sanitizing dishes kills germs that cause disease.



To wash dishes and utensils by hand, use a three-compartment sink and follow these steps:

C. Protect food from chemical contamination

Detergents, polishes, caustics, cleaning and drying agents, and other similar products are poisonous to humans. Keep them stored away from food.

- Follow label directions for storing and using chemicals.
- Carefully measure chemicals. Never randomly mix chemicals, especially ammonia and bleach.
- Store chemicals in their original containers. Keep them in dry, locked cabinets or areas away from food, food contact surfaces, and other chemicals that may react with them.
- Never use food containers to store chemicals or chemical containers to store food.
- Empty chemical containers must be disposed of as the manufacturer directs.
- Food handlers who use chemicals must wash and dry their hands before returning to food preparation duties.
- All containers or spray bottles must be properly stored and labeled with the name of the contents and hazards.

D. Protect food from physical hazards

Dirt, hair, broken glass, nails, staples, metal fragments (i.e., from shredded scrub pads), unshielded lights, rocks, band-aids, and other objects can accidentally enter food. It is important to make sure food is properly stored and prepared to avoid these hazards.

- Do not store toothpicks or inedible garnishes on shelves above food storage or preparation areas.
- Place and maintain protective shields on lights over food storage, produce display, and preparation areas.
- Remove staples, nails, and similar objects from boxes and crates when food is received so these materials do not later fall into the food.

TEMPERATURE CONTROL

A. Required holding temperatures

- Hot holding temperatures for potentially hazardous foods at steam tables or other hot holding equipment must always be 135°F or higher.

- Cold holding temperatures must always be 41°F or less except salad bars and buffets. They can hold potentially hazardous foods between 41°F and 45°F for not more than 12 hours in one day, then dispose of the food. Raw eggs in the shell and unopened containers of pasteurized milk and pasteurized milk products can also be stored between 41°F and 45°F.



- Every refrigerator must have an accurate thermometer. Place the thermometer in the warmest part of the refrigerator, which is usually near the door on the top shelf.
- The temperature inside the refrigerator must remain at or below 41°F. Remember, refrigeration stops the growth of most germs, but cooking to proper temperatures is the only way to kill the germs in food.

B. Temperature recording logs and their use

Using temperature recording logs is a way to make sure you are in control of safe food holding and cooking temperatures. For example:

- Cold holding food temperatures should be recorded every two hours to ensure that cold foods are held at 41°F or less.
- Hot holding food temperatures should be recorded every two hours to ensure that hot foods are held at or above 135°F.

have to use clean dishes and utensils when returning to salad bars or buffets for second helpings.

APPROVED FOOD SOURCES

A. Food served or sold at a food facility must be from an approved source.

- “Approved Source” means acceptable to the Department of Environmental Health and is permitted, licensed or registered with a food regulatory agency (i.e., USDA, FDA, or State of California).



- Each food facility operator must be able to show that the processor or supplier they are using is “approved.” Ask to see a copy of your suppliers health permit or their last inspection report.
- Food cannot be prepared in a private home.
- Raw or processed meat and poultry must have a USDA stamp of approval.
- Cheese must be purchased from a licensed distributor. The label must have the manufacturer name, address, processing plant number, ingredients and expiration date.
- Do not buy food from a door to door vendor because their source may be unsafe.
- Keep a list of where food products are purchased and maintain copies of invoices and receipts for tracking all purchases
- Be aware of delivery conditions and product quality. Check for tampering, discoloration, pinholes, unusual packages, contamination, vermin, and whether potentially hazardous foods are transported at safe temperatures.

G. Proper reheating of food

To reheat potentially hazardous foods for hot holding:

- Rapidly reheat food using cooking equipment or the microwave to an internal temperature of 165°F within 2 hours. Never reheat food in the steam table!
- If food is reheated in a microwave: reheat all parts of the food to an internal temperature of 165°F and rotate or stir the food, keep it covered, and allow it to stay covered for two minutes after reheating.
- Commercially processed ready-to-eat PHF, like canned vegetables, has to be reheated to an internal temperature of 135°F or above within 2 hours.
- Cooked and refrigerated food that is prepared for immediate service can be served at any temperature.

CONSUMER ADVISORIES

If a food facility serves raw or undercooked beef, pork, poultry, fish, eggs, or foods containing raw or undercooked eggs (i.e., Cesar Salad Dressing or Hollandaise Sauce), an advisory either orally (at the time of ordering) or in writing (on the menu) has to be given to the customer stating that the food is raw or undercooked.

A consumer advisory is not required for:

- Sashimi, seared Ahi Tuna, and steak tartare because it is common knowledge that these items are served raw.
- A consumer advisory is not required when a customer specifically orders food raw or undercooked (i.e., rare steak or soft boiled eggs).

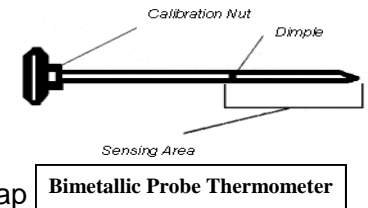
Customers must also be notified orally or in writing that they

- Record the temperature of reheated potentially hazardous foods to make sure it reaches an internal temperature of 165°F or above.
- Cooking temperatures of potentially hazardous foods such as meat, poultry, fish and eggs should be recorded at different times of the day.

C. How to calibrate your thermometer

Thermometers must be calibrated in accordance with the manufacturer's specifications as often as necessary to ensure their accuracy (i.e., if they are dropped), but not less than once each week. You should keep a record log of your thermometer calibrations. If a thermometer does not have specific instructions for calibration, the following methods may be used.

Ice Point Method:



1. Fill a large container with ice, preferably crushed if you have it. Add clean tap water until the container is full. Stir ice water mixture.
2. Put the thermometer probe into the ice water so the sensing area, usually about an inch up on a bimetallic thermometer, is completely submerged. Don't let the probe touch the sides or bottom of the container. Wait 30 seconds, or until temperature indicator stops moving.
3. On bimetals, hold the calibration nut on the underside of the dial head securely with a wrench, or the tool attached to the sheath, and rotate the dial head until the thermometer reads 32°F (0°C).

Boiling Point Method:

1. Bring clean tap water to a boil in a deep pan.

- Put the thermometer probe into the boiling water so that the sensing area is completely submerged.

On bimetallic thermometers, hold the calibration nut on the underside of the dial head securely with a wrench or tool attached to the sheath and rotate the dial head until the thermometer reads 212°F (100°C) or the appropriate boiling point for your elevation.

D. Adequate cooking of food

- Cooking potentially hazardous foods to the required temperatures is the only way to kill germs in food.
- Probe thermometers should be used to check internal temperatures. A thermocouple thermometer is best used to measure the internal temperature of hamburger patties. Thermometer probes should also be cleaned and sanitized between uses. Digital thermometers can also be used.

State mandated internal cooking temperatures are:

Food Item	Cooking Temperature
Fruits & vegetables cooked for hot holding	135°F
Shell eggs cooked for immediate service; fish; single pieces of meat	145°F for 15 secs
Comminuted meat; injected meats; raw eggs for later service	155°F for 15 secs
Poultry; comminuted poultry; stuffed items (fish, meat, poultry, pasta); stuffing containing fish; meat; poultry; ratites)	165°F for 15 secs
Roasts (beef, pork, and ham)	130°F or as specified in the California Retail Food Code

It is important to know that the required temperature is not the oven temperature, it is the internal temperature of the food after it is cooked.

E. Proper cooling procedures

- After heating, cooking, or hot holding, potentially hazardous foods must be rapidly cooled from 135°F to 70°F within two (2) hours and from 70°F to 41°F within four (4) hours.
- Large portions of food must be divided into smaller containers to ensure rapid cooling.
- Proper rapid cooling methods include:
 - Placing the food in shallow pans.
 - Separating the food into smaller or thinner portions.
 - Using rapid cooling equipment.
 - Using containers that facilitate heat transfer.
 - Adding ice as an ingredient.
 - Using ice paddles.
 - Inserting containers in an ice bath and stirring frequently.
- Food containers used for cooling should be kept loosely covered, or uncovered if protected from overhead contamination during the cooling, and stirred if necessary to evenly cool.



F. Safe food thawing of food

There are 4 approved methods for food thawing:

- In the refrigerator
- Completely submerged under running water at a water temperature of 70°F or below for not more than 2 hours (must be able to flush food particles away)
- In the microwave
- While cooking